



INSPECTORATE OF RAILWAYS

BRAZILIAN RAILWAYS

THEIR

HISTORY, LEGISLATION AND DEVELOPMENT

BY

CHROCKATT DE SÁ. C. F.

INSPECTOR - GENERAL OF RAILWAYS



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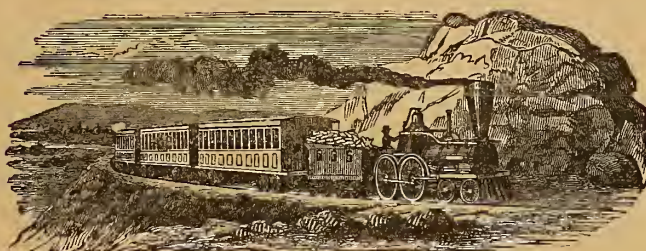
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PREFACE

Gratified by the honourable invitation it has received, The Republic of the United States of Brazil hastens to pay its tribute to the great World's Fair held at Chicago.

At this meeting of Nations, where each has come to show its relative development and how much it has worked for the social well-being, Brazil, although not noisily manifesting great triumphs, still can show that it has not receded nor stopped, but rather advanced slowly but surely in the long path of civilisation.

Others, more competent, will show what progress we have made in the sciences and arts, the development that has been given to normal and professional teaching, to the expansion of internacional commerce, to all, in fine, that may interest the true knowledge of a country, so as to be conveniently judged in a competition where the only criterion is the existing degree of prosperity or the quantity and quality of working implements produced.

It is our duty, as The General-Inspectorate of Railways, to describe the present state of our railroads, and show that a great deal has been done, especially when treating of a mighty country, the area of which is almost equal to that of the European Continent, inversely, where capital is not abundant.

Considering that, since the exhibition at Philadelphia, the country has passed through two great commotions : the emancipation of slavery and a political emancipation, producing the withholdment of capital as a natural consequence, nevertheless, it must be acknowledged that during this critical period of the history of Brazil, a greater impulse has been given to railways than ever before, since, in the short period of 16 years, the extension of railways has been of 15103^{km},371 (in traffic and in construction).

Notwithstanding the errors, the hesitations, which will be better understood after studying the different phases through which the legislation concerning railroads has passed, it cannot be contested that, after all, the financial results have been advantageous to the country, although not so favourable to some enterprises.

The last measures taken by the Government and those intended to be taken by Congress, following attentively a general plan, purposely studied and previously settled upon, will prevent concessions being given, but those adopted in these plans.

However, properly considering all the conditions of whatever relates to railways in Brazil, whether these be considered as a whole or in detail, either administratively or technically speaking, it must be acknowledged that, as Mr. Anna Nery has written (1) :

« If Brazil feels modest when considering its developments, surely it ought to be proud when comparing them. »

(1) Le Brésil. 1889.



HISTORICAL

The development of railways in Brazil has traversed four distinct phases : 1835 — 1852, 1852 — 1873, 1873 — 1890 and from 1890 till now, that is to say : first-essays ; execution ; regulation as to rights ; regulation as to plans.

I PHASE

On the 31st. of October 1835, exactly when hesitations and oppositions were surmounted in the United States of North America, France and Belgium, a great impulse was given to railroads by the promulgation of the first Law in Brazil, authorising the Government to concede privilege, for forty years, to companies who would construct railroads from Rio de Janeiro to the Capitals of Minas Geraes, Rio Grande do Sul and Bahia.

It was a bold and patriotic Law, but not opportune.

Brazil had become independent of the metropolis in 1822, it had but thirteen years of autonomous life, and was unknown and without resources. This first attempt was sure not to be successful.

The efforts of the Marquis of Barbacena, commissioned by Government to organise a company in London, were unproductive.

In virtue of the above mentioned Law and having the Chambers of Commerce, Agriculture, Manufactures and Navigation been heard, a privilege, for eighty years, was granted on the fourth of November 1840, to Dr. Thomas Cochrane to construct a railroad from Rio de Janeiro to S. Paulo. This concession was declared without effect by an order (aviso) dated 15th of January 1853.

II PHASE

The said Dr. Thomas Cochrane having solicited a guarantee of interest upon the capital to be employed, besides other favours to enable him to organise a company, the Imperial Council was consulted upon.

The Council being of opinion that the request should be granted and the Emperor having confirmed this opinion, the papers were sent to the Chamber of Deputies, on the 19th of January 1849.

The Legislative Body fixed the basis for future concessions so as to encourage private enterprise.

Among the different systems adopted in the United States of North America and Europe, that established by the French Law of the 15th of July 1840, and modified according to the legislation of the Land-Laws, that is, guarantee of interest and right of compensation at the end of a certain period, was adopted.

In accordance with these terms the Law N^o 641 was promulgated on June 26th 1852.

It authorised the Government to concede privileges, for periods up to ninety years, to companies which should construct railways from Rio de Janeiro to the States (then Provinces) of Minas Geraes, S. Paulo and others, the guarantee of interest being of 5 % upon the capital employed, the Government having the right of fixing the manner and the term of guarantee.

The privileged zone was to be five leagues on each side of the line.

The right of disappropriation was given ; the use of the timber and other materials existing on unoccupied and National lands was conceded, as also the exemption from duties of the material to be imported including coals. It was stated that Government, after a certain time, would have the right of taking the line over ; the maximum of dividends was fixed at 8 %, beyond which, the company, that might be organised, would have to repay the interest received and reduce its tariffs.

The regulation established by this Law ruled the construction of railways in Brazil. The country was entering into its second phase, for many reasons, the most interesting in the history of our railways.

According to the above mentioned Law, the following concessions were made :

From Recife to S. Francisco, Decree N^o 1030, of August the 7.th 1852.

From Bahia to S. Francisco, Decree N^o 1299, of December 19th 1853.
The concessions made to Dr. Thomas Cochrane for a railway from Rio

de Janeiro to S. Paulo, were declared of no effect on January the 15th 1853.

It having been found impossible to organise a company in London, Government appointed a Commission to realize one in Brazil, which was effected under the name of D. Pedro II Railway.

The Decree 1598, May 9.th 1855 determined that the road, after passing the «Serra do Mar» should be divided into two branches, one in the direction of S. Paulo and the other in the direction of Porto Novo do Cunha — the division of the State of Minas Geraes and Rio de Janeiro.

Later on, in accordance with the Law of June 26.th 1852, and N^o 1759, April 26.th 1856 a concession was granted, from Santos to Jundiahy, in the State of S. Paulo.

S. Paulo, Rio de Janeiro, Pernambuco and Bahia gave the complementary guarantee of 2 % on the capital employed. At this period of the history of railways was revealed the powerful individuality of Irineo Evangelista de Souza (Viscount Mauá).

Endowed with a rare energy, with an incomparably lucid mind, with a vertiginous activity, this man, whose life is intimately connected with almost all the industries, which have been developed in Brazil, had the great courage and good fortune, at this critical phase of the history of railroads in Brazil, when obstacles which seemed insuperable arose on every side, to give a vivifying example of what private enterprise can effect.

On the 27.th of April, 1852, having made a contract with the Government of the Province of Rio de Janeiro for the construction of a railway from the port of Mauá to the foot of «Serra da Estrella», he successfully incorporated a Company to that effect.

The first section was opened to traffic on the 30th April 1854. This railway then called Estrada de Mauá, is, at present, the first section of the Estrada de Ferro Principe do Grão Pará.

This first constructed in Brazil, without pecuniary favours of any kind, a notable example of what private enterprise can perform, this road, as the engineer Pereira Passos brilliantly remarked (1). «Is for Brazilians a venerable undertaking which symbolises the «alpha» of our railroads, as the soil of our country, then, for the first time, felt the rolling of the locomotive».

The ice was broken.

(1) Railways of Brazil. 1879.

Encouraged by this powerful example, the, then Provinces, entered the broad path of enterprise.

The Province of Rio granted the concessions for the Cantagallo (1856), Macahé and Campos (1870), Santo Antonio de Padua (1872), Rezende e Areas (1872). S. Paulo — Paulista (1862), Sorocabana (1870), Mogyana. (1872). Minas — Leopoldina (1871). Pernambuco — Recife a Limoeiro (1870), Recife a Caxangá (1863), Recife a Olinda e Beberibe (1868). Bahia — The Central (1866). Rio Grande do Sul — Porto Alegre a Nova Hamburgo (1869), Rio Grande a Bagé (1871). Paraná — Paranaguá e Coritiba (1872).

All these railways are in traffic.

The General Government commenced the third branch of the Pedro II, traversing the State of Minas Geraes, and having for its objective the river São Francisco. It conceded, without pecuniary favours, the branch of Pedro II to the city of Valença 1866. Second to the Mauá Railway, this, known as « União Valenciana », is the most interesting in the history of our railroads.

It was the starting point for the construction of economical railways.

Until then, the gauge adopted had been of 1,^m60, that of Mauá being 1,^m68. From that time the gauge of 1,^m00 became the Legal Gauge for all concessions.

It is to this gauge, and that alone, that we owe the expansion of our railways, it being better adapted to the hilly country of Brazil, consequently more economical in the cost of first establishment, was able to allow the great development in a new country, without capital, in which it was more necessary to create interests, than to serve those already established.

The transformation of the gauge was therefore an act of great import in the history of Brazilian railways. This was due to engineer Herculano Velloso Ferreira Penna.

During this phase were promulgated the Decrees : — n. 1664 on the 27th of October 1855 approving the regulations for the execution of the Law 816 of June 10th of the same year, on dispositions necessary for the construction of railways in Brazil, and that of n. 1930 of April 26th, 1857, approving the regulations about safety, maintenance and police of railways.

The latter was amplified by Decree n. 2013, April 23^a 1862, and both were counter-signed by the Illustrious Brazilian, Luiz Pedreira do Couto Ferraz, who died Vicount of « Bom Retiro ».

Contrary to the observance of the system adopted by the Central Government on guarantee of interest, the State, then Province of Minas

Geraes, granted the Leopoldina Railway a subvention of 9:000\$000 for every kilometer.

Having been adopted to three divisions of the same line, afterwards to the first part of the «Estrada Oeste de Minas» (from Sitio to S. João d'El-Rei) to the «Bahia e Minas railway» and to some others in the State of Rio de Janeiro, this system was afterwards substituted for that of guarantee of interest, at present generally adopted both by the Union and the States.

It is ineontestable that this was the most brilliant phase of railways in Brazil, although the results obtained do not correspond to its period.

In the year 1873 only 1021^{km},778 of railways were in traffic, but all subjects concerned were resolved, subvention system was established, legislation created and regulations published.

To the names of Vicounts of Mauá and Bom Retiro, and of Engineer Ferreira Penna, to whose tenacious and efficient cooperation is due the development of railways, we have only to add that of Christiano Benedicto Ottoni to complete the list of the Patriarchs of Railways in Brazil.

To him we are indebted for the construction of the D. Pedro II Railway, now the Central Railway, which runs over the Serra do Mar.

PHASE III

The ice was broken, said we when studying the second phase of Railways in Brazil.

After many years of doubts and uncertainties some good results having been obtained in some enterprises, it excited both public and private initiative. The interest which Government naturally had in promoting the development of the country caused a great number of concessions to be given out. Conflict was to be expected. Where did powers of Provincial Governments begin and where did they end? It was indispensable that the plan of the Central Government should not be frustrated nor opposed by Provincial concessions. Hence the necessity of fixing the powers of each Party.

This was done by Decree n. 5561, February 28th 1874, which approved the regulation for the execution of all decrees concerning concessions of railways.

This regulation determined the relative competency of the Central Government and of the Provinces.

Thus : only the General Government had the right of granting railways

which should connect two or more Provinces, the Capital of the Empire to the Provinces and the Empire itself to adjoining Foreign States.

2) Those specially intended for the service of the General Administration of the State although within the limits of Provincial Territory.

3) Extensions of railways already operated by the General Government or decreed by it.

The Provincial Governments could grant concessions of railways.

1) When within the limits of the respective Provinces, excepting when there existed, in the same direction and within a zone of 30 kilometers on each side, another belonging to the General Government, already established or initiated by it.

2) When being ramifications of a line of General Government's competency, in which the territories of the Provinces should be circumscribed.

Either General Government or the Administrations of the Provinces were competent to grant concessions of any railways intended to connect the Provinces to the sea-ports, and which might be considered as great arteries of the commercial movement of the Provinces.

In this case competency was decided in favor of those who had the initiative and raised the funds.

The Provincial Administration could also contract the extensions of railways belonging to the General Government or Decreed by it, after obtaining from the Government the necessary authority and express declaration of its intention not to continue the said extension.

This regulation would have produced salutary effects, preventing the vicious application of capital and submitting all concessions to a plan previously organised, had not one of the motives of its promulgation been principally the execution of Law 2450 of September 24th 1873.

This Law authorised Government to grant subventions or guarantee of interest up to 100,000:000\$000 (£ 11.250:000) for the construction of railways, with power to be surety for the guarantee of interest of Provincial railways, one in each Province. This Law had been cautiously voted in regard to general interests.

It established that the Government guarantee of 7 %, should be previously justified by proving, with convenient statistical data, probable net earnings of 4 % on the required capital. This disposition was however grossly adulterated or entirely neglected.

Besides, it was impossible to obtain exact statistics of productions in a new country of which, even statistics of population are not to be had.

What furthered its decline, was done through political intervention;

and this phase, in which concessions were abundant, is in my opinion, the most unhappy on account of the bad results obtained.

The plans had not been conveniently prepared ; the only condition required being the connection between any two points.

The guarantee granted seemed sufficient to secure the interests of share-holders. But the deficit from working of the lines, showed clearly that they had not the conditions necessary to vitality, and, what was worse, the future of railways in Brazil had been injured by the justified distrust and consequent withdrawal of foreign capital.

Moreover, this regulation, which seemed to answer to a fixed scheme of general railways, was executed without the said scheme having ever been organised.

There are, nevertheless, some railways in prosperous conditions granted under this system.

But it is incontestible that the bad use given to this regulation, somehow retarded the development of railways in Brazil, on account of the negative results it permitted.

On the 3^d of May 1873 was promulgated the Law n. 2237 which gave to Government the faculty of exempting from import duties all fixed and rolling stock, apparatus, machines, implements and fuel necessary for the construction of railways, on the condition that the quantity and quality of all objects to be despatched should be previously determined by the Government.

During this phase, Legislation passed through one alteration.

The system adopted, relatively to the means of putting the guarantee of interest into effect during the construction, consisted in ascertaining the amount of capital spent at the end of each half-year by measuring the work done.

Decree n. 6995, August 10th, 1878, countersigned by Councillor João Luiz Vieira Cansansão de Sinimbú, modified this system and this modification was observed in all contracts celebrated after that date.

The second clause of this Decree determines that : § I During the construction of the line, interest of 7 % will be paid on the sums which have been authorised by the Government and put into a bank so as to be employed when necessary. Only the sums necessary for the construction of works during the year should be withdrawn. Therefore the Companies should present to the Ministry of Agriculture, Commerce and Public Works, in Rio de Janeiro, two months before the commencement of the works, their respective estimates on the same basis as the general estimate which regulated the surety or the guarantee of interest of the fixed capitals.

After the end of the first year of calling in capital, the interest will

not be paid until the conclusion of the works which had to be finished in that year ; but as soon as completed, the payment of interest will be continued.

§ I The interest paid by the banks on the deposited sums, will be credited to the surety or Government guarantee as well as any other eventual incomes received by the Companies, such as taxes on transferring shares, &.

§ III In the capital raised during the construction will not be included the price of rolling-stock nor that of apparatus or machines of any kind, necessary for the repair and maintenance of the road ; they will only be reckoned for the guarantee of interest, six months before this rolling-stock, machines and apparatus are employed in the traffic of the railway.

§ IV As soon as the line is partially or totally opened to traffic, the interest, corresponding to the respective capital, will be paid according to balances of liquidation of receipt and expense of the railway, presented by the Companies and duly examined by the agents of the Government.

§ V Beyond the sums necessary for construction during each year, as established in the second part of the § I, clause II, the Companies can call in capital at the beginning of the first year up to 10 % of the guaranteed capital, to defray preliminary expenses, before beginning the construction of the railway.

Later on was published Decree n. 7979 February 1880, approving the clauses which should regulate the concession of railways. Almost all contracts were, from that date, celebrated according to these clauses.

This Decree comprises the last measures, altering and modifying or completing the Legislation on Railways, in the phase which we have just reviewed.

PHASE IV

In 1890, Brazil was under a new Political System.

The monarchy had disappeared and with it its Constitution. On the 15th of November 1889 the Republic was proclaimed under the Federative form. As it had been of the utmost necessity to determine the relative powers between the General Government and the Provincial Administrations during the Empire, much greater was the necessity of such discriminations, under the New System, on account of the autonomy granted to the Federated States.

For this reason, on the 26th of June 1890 the Provisional Government promulgated Decree n. 524, determining the rules of Their relative competency.

By the first article of this decree it was established that the Federal Government could grant concessions of railroads *only* :

1) when connecting the Capitals of the States with the Seat of the Federal Government having in view the advantage of economical interests of the Nation and political unity.

2) when establishing communications between the territory of the Republic and that of the adjoining countries, satisfying international interests.

3) when fulfilling strategic conditions relative to the defence of National Territory or when running straight to the boundaries or to strategic points conveniently chosen.

Excepting these three cases, the Government of the States could grant concessions, with the following restrictions :

a) when the line to be granted were the extension of any railway granted by the General Government, the concession could only be given after the Federal Government declaring His intention of not continuing it.

b) when it would be a branch of a general railway, the Federal Government to be consulted about its starting point and gauge.

c) when the line to be granted starts from a general railway or crosses it, should demand a port or be bound to another particular line, express authorisation from the Federal Government must be had.

d) Finally, the same authorisation would be indispensable whenever the line to be granted, would run parallel to another belonging to a general railway, and within its zone of 100 kilometers.

Excepting the aforesaid cases, the Federal Government could only decree the construction of a railway in the territory of a State, when necessary to connect to the general system of railways, any military or industrial establishments, maintained by the Federal Government or to satisfy fiscal interests on the boundaries.

In order that the said Decree might be put into execution, instructions were given to the Commission of Engineers appointed by the Provisional Government on the 23^d of May 1890, to organise a general plan of railways.

This Commission, composed of Engineers Colonel (now General) Jeronymo Rodrigues de Moraes Jardim (chairman), Alvaro Rodovalho Marcondes dos Reis, Edmundo Busch Varela, Julio Augusto Horta Barbosa and José Gonçalves de Oliveira, presented the following plan on the 22^d of November 1890 :.....

GENERAL RAILWAY SYSTEM

East-West Central Artery

The Commission adopted for the main trunk in the east to west direction the line which, running along the Central Railway of Brazil to a conveniently chosen point between the stations of Barra-Mansa and Commercio, should be the shortest to Catalão, passing through the neighbourhood of Lavras, and thence to the boundary of Bolivia, so as to benefit the Capital of Goyaz, the navigation of the Araguaya and Rio das Mortes, Cuyabá, S. Luiz de Cáceres and navigation of the Guaporé on the aforesaid boundary.

In deciding on this line, the Commission had to consider several projects suggested by private enterprise or its own studies on every thing thereto connected.

It was ascertained that this line, measuring 2,200 kilometers, was the shortest that could be chosen, and that it could only be compared to that which from a point of the Central Railway, on the branch which runs through the valley of the Rio das Velhas, should go by Catalão to Goyaz and Cuyabá or from Tres Corações should take the direction to Catalão by Minas and Rio. These would be about 116 kilometers more extensive.

To start from Uberaba, where there is already a railway in traffic, to Catalão, would be preferable as its entire extension is only 1,439 kilometers to Cuyabá, while that through Lavras is 1,795 kilometers; but the line by Catalão although utilizing the railways already in traffic, would increase that between Rio de Janeiro and Cuyabá by 440 kilometers; as this would be a permanent and heavy burden the said line was rejected.

The line through Curvello, requiring the construction of 134 kilometers less than that of Lavras, would be preferable, especially, as it should run directly to the Central Railway, then increasing its traffic

zone by 772 kilometers. This circumstance would naturally lead to its adoption were it not considered that its greater length, of 227 kilometers, would surcharge transportation, although less than by Uberaba.

The line which should start from the Central Railway between Laffayette and Sabará, measuring only 116 kil. more than that touching Lavras, and utilizing 500 kil. of the same Central Railway, perhaps would offer equal conditions to that of Lavras, which, taking Barra do Pirahy as starting point, would utilise the said railway only from Barra do Pirahy to Rio de Janeiro. The Commission, therefore, would have had to hesitate in making its choice of either of these lines, till it had surveyed the zone through which they were to pass, so as to be able to estimate the economical advantages and respective technical conditions, had there not been special arguments to give indisputable supremacy to the line adopted.

A glance at the map shows that the general direction of the line from Lavras to Goyaz and thence to Cuyabá, divides the waters of the great valleys which form our hydrographic system.

The rivers S. Francisco, Tocantins and Araguaya with their numerous tributaries run north, and the rivers of the vast Paraná valley south.

Guided by this particular circumstance, the Commission soon concluded that a railway intended to serve the main artery of general roads in the western direction, greatly benefiting the Northern and Southern States and connecting them with the principal port of Brazil by means of rapid and easy communications, should run along the division-line of the great valleys, in order to completely facilitate the connection of navigable rivers, by means of relatively small branches running to the starting points of navigations; and, as the Capitals of Matto Grosso and Goyaz are on the said division-line, it is intuitive that this would be the only plan, able to economically benefit political interests, by binding them to the Federal Capital. Catalão, being on the line which puts Goyaz into connection with the Federal Capital, was considered undoubtedly the shortest and most convenient line; thence resulted the comparative study of the different propositions suggested, the aim of which was: shortest route, best utilization of existing railways and least burden to the Public Treasury.

Only one of the propositions which were studied, answered the design of better utilizing the Central Railway and of constructing as little as possible; but, as the total length was 116 kilom. more, which would be a permanent burden to traffic, the Commission deemed proper to decide on the line through Lavras, even if kilometric cost and technical conditions should be equal. However, examining the topography of the

respective zones, the routes and information given by trustworthy persons, one is convinced that the line by Catalão, from Lavras forward, would meet with great facilities which would lead to the best technical conditions and to cheaper construction; branching from Laffayette or Sabará, it would have to run in succession through valleys and over great rivers as the Paraopeba, Pará, S. Francisco and others, besides the Serra, da Canastra, which would have to be passed over before arriving at Catalão.

It must, however, be remarked that, if really the line starting from a point on the Central Railway, on the section running through the valley of the Rio das Velhas, can offer the advantage of making the greatest use of the said line and of constructing the least new line, these advantages have been considered in the plan, for, according to the foregoing chapter, in order to connect the Southern and Western Systems with that of the North, the Commission adopted the route running from Peçanha to the Central Railway, touching Curvello, in the general direction from Peçanha to Araxá.

S. Francisco Line

This line, having been adopted in order to connect the Northern System with the Southern, fully answers the purpose for which it is intended, either on account of its direction and great extension, or on account of the economy with which it can be adapted to heavier traffic, being in the best possible conditions for the purpose.

The Commission deems it unnecessary to justify this line, since the neglecting of it in the organization of the General Railway System, would be an inexcusable mistake.

Of course future necessities for greater speed in transportation and heavier traffic might require a line to run further to the north, but this has been foreseen and provided for in the plan. No communication answers better, nor is better adapted to present requirements than the great rivers mentioned.

These rivers are connected in the extreme north to the Railway System in Petrolina or Joazeiro, to which place the extension of the Bahia to S. Francisco Railway will arrive and thence will start to the Therezina Railway with branches to S. Luiz and Belem on one side, and to Fortaleza and North eastern States on the other. In Piranhas and Jatobá it will join the extension of railways belonging to the above States, thus establishing direct communication between them.

Their southern extremity is connected to the Central Railway, therefore to the Federal Capital, at a point where it joins the East to West Central Artery, by means of the navigable section of the Paraeatú and by means of the railway whose extremity meets it in Araxá.

Thus, the great natural water-way running N. and S., will establish admirable communication between the Northern States and those of the South, Centre and West.

Besides, the development of the natural riches of this important valley, discharging on to one side or the other, according to economical conveniences, will tend to increase the traffic of the railways situated on its extremities.

This will accentuate the industrial character of the line.

Through-Line from Jatobá to Peçanha

Foreseeing future necessities, the Commission included in the System a railway which, starting from Jatobá and touching Villa Nova da Rainha, Lençóes, Rio Pardo and Arassuaí, should meet the branch of Ouro Preto in Peçanha, or should be extended as far as Itabira. This line is intended for the same purpose as that of S. Francisco, to which it answers just as well.

Situated in a central zone between the coast and the «Serra Geral», it is in connection with the great rivers which, in the said zone, run at right angles to the coast, and it connects the Northern States to the Federal Capital by means of the Central Railway and of its branch to Ouro Preto. In Peçanha it branches off in the direction of Araxá, so as to join with the Southern Railways, with the line of Coxim, with the boundary of Paraguay, finally, with the Central Artery.

This line although not indispensable at present, solves the problem of rapid and direct communication between the States of the Union and facilitates the exportation of products from the centre of Bahia and Minas Geraes by the rivers which flow to the coasts of Bahia and Espírito Santo.

Northern Railway System

This System includes : The railway from Petrolina to Therezina, which, utilizing the line of the latter as far as Caxias, extends to Araguaya, branching off to Belém, between Porto Franco and Caxias ;

the Alcobaça Railway, intended, at some future time, to run up to Manáos ; the extension of the railway from Fortaleza to Baturité, touching Crato and Ouricury and meeting the former ; the extension of the line from Recife to Caruarú, its main line being that of Baturité, near Ouricury.

A glance at the general plan shows clearly that there could be no better communication between the Northern States.

The railways of the Northeastern States having been connected, the line from Recife to Caruarú, on account of its central position and equidistance relatively to this System, is naturally fitted for completing the communications of the System.

As it is indispensable to connect directly all these States to the Federal Centre, the plan indicates a ramification of the Carnarú line in the direction of S. Francisco, in Jatobá ; by these means, the connection, referred to, will be established either by the navigation of the S. Francisco, as at present, or by the continuous line, in the future.

The System thus combined, answers all the purposes aimed at.

All the Northern Capitals are connected in a manner most convenient to the economy and conditions of mutual communications, thus :

Manáos, Belém and S. Luiz by the branch through the valley of the Itapicurú ; Fortaleza, Therezina, Recife, Natal, Aracajú, Maceió and S. Salvador by the extension of the railway from Bahia to Joazeiro.

Indeed, while answering to both political and social interests, this System facilitates commerce and the carrying of productions to Northern seaside Capitals.

Southern Railway System

The railway from Itararé to Santa Maria da Bocca do Monte was adopted as main line for the Southern Railroads, as already said, not only because it had been granted and contracted at the time when the Commission was appointed and organised, but also because its plan and extension perfectly answer their purpose.

This line, taking the general direction from north to south through the centre, that is, from S. Paulo to Rio Grande do Sul, solves the problem of communication between these two States and those of S. Catharina and Paraná, having besides the great advantage of connecting its northern extremity with the railways of S. Paulo, so as to be united to the General Network of Railways.

But this line, by itself, could not entirely answer the purposes for which it was intended, without being connected to the Capitals of S. Catharina and Paraná, and to the best sea ports of these States.

Only by means of these connections could the exigencies of the General Administration of the Republic, regarding those two States, be attended to, as their Capitals are greatly distant from the aforesaid main line, nor could otherwise the defence of Rio Grande do Sul be guaranteed, in case any interruption on the line between the Federal Capital and S. Catharina or Paraná should happen, a very possible occurrence on a line so extensive.

The convenience of the industrial improvement of all the zone traversed by the main line and, therefore, the economical conveniences of the Central Line require all the aforesaid connections.

In the long course of this System, from S. Paulo, to Rio Grande, there being only two outlets, one in each of these two States :—the port of Santos and that of Rio Grande, «via» Porto Alegre, the industrial development of the zone run through would certainly be sacrificed on account of the charge for heavy freights, or else extraordinarily low tariffs would have to be adopted, to the detriment of the railway incomes, even considered within the narrow limits of a moderate interest on the capital of the enterprise.

Hence the necessity of other outlets at intermediate points.

For this purpose the Commission indicated, for the State of Paraná, the extension of the railway from Paranaguá to Corityba as far as Ponta Grossa or any other point of the line, which should be deemed preferable after having been surveyed.

As to the State of S. Catharina, considering the great difficulties to be met with and the enormous expense necessary to pass over the Serra Geral, which, therefore, should be avoided as much as possible, the Commission tried to organise the Railway System of that State so as to pass over the said mountain only once, constructing branch lines, below and in the higher regions.

It is incontestible that the valley of Itajahy is the most suitable for the development of a railway running up the mountain, facilitating, by its natural position, branches to such points of the territory as are most likely to profit by them.

On the other hand, the port of S. Francisco presents the best conditions for the outlet of a great central line.

Being so, a line seems of the utmost convenience, from the port of S. Francisco, passing through the valley of Itajahy to the Serra Geral, thence running up the said mountain, by means of a branch to Cori-

tibanos or Lages, extending to the railway from Itararé to Santa Maria and having a branch to Desterro, on this side of the Serra Geral.

The necessities of establishing communications between that Capital and the Political Centre of the Republic, will thus be satisfied.

Besides, considering the profit to be derived on the marginal territory of the river Paraná as to strategic views; and the necessity of turning to advantage the natural elements of riches there existing, finally, the establishing of international communication with Paraguay, the Commission proposed the extension of the said line through Palmas, as far as the mouth of the Chopim, on the Iguassú, where it will join the branch projected from Guarapuava to the mouth of the latter, on the Paraná.

Finally, the Commission thinking convenient to establish a second communication with Rio Grande do Sul, which would be indispensable in possible cases of interruption on the Central Main Line, proposed a branch, from Coritibanos or Lages, to Porto Alegre, through the plains of Vaccaria, whence it could be extended to Passo Fundo, so as to be in direct communication with the central zones of Rio Grande and to open the way to Cruz Alta, strategic point of the highest importance for concentration of troops.

The branches in the direction of the boundaries, which will be described and justified under the title — Strategic System — belong to the Southern Railway System, organised in accordance with the concessions previously granted and railways already existing.

Strategic System

In order to adapt the railways, in general, to the necessities of defending the National Territory, the Commission first investigated which were the points most suitable for occupation, in case it should be necessary, taking into consideration economical interests and the conveniences of international commerce and intercourse.

Accordingly, different points were determined on the boundaries of Uruguay, Argentina and Paraguay on the South, of Bolivia on the West, and of Venezuela and the Goyanas on the North, as strategic branches conveniently connected between them, specially chosen for the concentration of troops and munitions of war.

The latter were localised so as to be able to receive resources at the same time from all the States of the Union, to be sent to the boundaries according to necessities.

All these lines, although some seem to be more urgent than others, represent real and evident interests.

In relation to the boundaries of the south, those from Pelotas to Jaguarão, from Santa Maria to the Rio Negro through Bagé, from S. Gabriel or Cacequy to Sant'Anna do Livramento, from Cacequy to S. Borja, from Cruz Alta to Uruguay, close to the mouth of the Píperí-Guassú and the branch from Guarapuava to the mouth of the Iguassú, were indicated in the project.

These lines, combined with the existing railways or with those which are going to be constructed, constitute a Complete System by which the boundaries in the south can be defended, when necessary, both by occupying those which might require such measures and by the facility of transporting supplies of all kinds.

As to the boundaries on the south of Matto Grosso, the Commission deemed it of the utmost necessity, to facilitate the occupation of strategic points both on the slopes of the Paraná and the Paraguay. It therefore indicates the line which, being connected with the General Network in Ponta Grossa, should run along the rivers Ivahy, Paraná, Ivinheima, Brilhante, Miranda and Paraguay as far as Corumbá, the western extremity of the boundary with Bolivia, which would profit by it.

This line, which for the present can serve as a mixed one, being advantageous to the navigation of the aforesaid rivers and its interruptions overcome by means of railways, will constitute in future a continuous line, with the advantage of rapid transport which is of no little importance, strategically considered. The Commission also, as a measure of necessary improvement, determined that it should start from the bay of S. Francisco, as the most suitable to the important purposes for which it will be destined in future times, even when considering the economical and industrial interests of the zone which it will serve and which is known to be very rich and susceptible of improvements and prosperity.

Regarding this line, the Commission adds that not being able to realise the possibility of executing its extension from Miranda to Corumbá, advised that the territory should be surveyed in order that this doubt may be removed.

The proximity of the boundary, as can be seen in plan, did not pass the Commission's notice, and foreseeing the possibility of the line being rendered useless on appointed occasions, it selected another more central which, running straight away from to the boundaries, should be protected against the eventualities to which the former was exposed.

The line from Coxim with a branch to Nioae, or any other place judged the best after being surveyed, was accordingly pointed out. This

railway, which will encourage the improvement of the vast and fertile region south of Goyaz and Matto Grosso, guarantees the defense of the said boundary and, starting from Uberaba, establishes the most direct and convenient communication with the Federal Capital and the different States of the Union, by means of the combination to which the General Network is subjected.

As to the boundary with Bolivia on the west, both the great East to West Central Line and the Madeira and Mamoré railway, answer perfectly to the strategic purposes adopted by the Commission as necessary and convenient, afterwards considerably improved, as will be seen further on.

Finally, the northern boundaries will be served by the railway from Manáos to S. Joaquim, which can branch off in the direction of Venezuela and Dutch Goyana. For the objective of this line, the Commission chose the place denominated S. Joaquim, seemingly a very important strategic point, and considered, from information obtained of the healthy climate in the region watered by the river Branco as well as the riches there existing, admirably adapted to pastoral industry and, partly, to agriculture; considering also the geographical position of this zone in regard to commerce with Europe and North America, the Commission thinks it destined for a very important industrial centre.

At all events, it represents the greatest necessity, because it is intended to protect our boundaries from the possessions of European Nations, whose politics have, lately, tended to enlarge their territorial dominions.

Having been informed that on the boundaries of Brazil with British Goyana, the natives were taught English and that accordingly they became identified with that Nation, led also by recent events which showed clearly the ambitious intentions of European nations regarding territorial possessions, the Commission accounts it as of the utmost importance the Nationalisation of those remote regions as soon as possible, and most earnestly calls Government's attention to this point.

Concluding this chapter, the Commission adds that it did not indicate the line intended for defending the boundaries with French Goyana, judging it proper to await the results of the surveys, ordered by Government, in that region.

Lines Intended for Closing the Circuit of the General System in the Interior

The Madeira and Mamoré railway, regarded long ago as of the utmost necessity and convenience, tends to serve other purposes besides those intended from its execution.

Destined to surmount every obstacle preventing the free navigation of thousands of kilometers and to be the only means of exporting all productions from the interior of the country and of commercial intercourse with other countries, its industrial importance and political convenience are thereby evidenced.

However, it is without doubt that, being isolated in the remote regions through which it runs, it requires to be connected with the General Network, in order to render it accessible to the centre of the country.

It would be thereby better adapted to both political and really internal interests.

To attend to this necessity, the Commission intends it to follow the course of the Guaporé, starting from Guajará-Mirim to the extremity of the navigable part of this river, where it is to meet the extension of the East to West Central Artery, to the boundaries of Bolivia.

In order to extend these communications to the south of Matto Grosso, the Commission proposes the construction of the Guaporé-Jaurú railway, connecting the navigable parts of this river somewhat more than twenty leagues distant from each other.

The circuit of the general network in the interior will thus be doubly closed: on the Guaporé, by means of the Central Artery, in Corumbá by the line of Miranda, Brilhante, Ivinheima, Paraná and Ivahy. We must also remark that by means of two land sections, measuring a little less than 600 kilometers, free communication will be established between the mouth of the Amazonas and that of the Prata.

According to this plan, the General Network is also closed by a continuous railway forming two lines, the one extending from Manáos to a convenient point on the Central railway between Cuyabá and the Rio das Mortes, the other from Cuyabá to the Coxim railway, in Bahús.

These communications, indicated in order to guide the execution of the General Plan, will only be realised in the remote future on account of the slow development and lack of population in the regions through which the lines run.

However, on account of the natural fertility, geographical position, and relative situation of those regions, the necessity and convenience, both political and social, of the proposed lines in the interest of industrial progress, can be foreseen.

.....

In accordance with the above plan, various concessions were granted by the Provisional Government.

The Constitution of the United-States of Brazil having been promulgated on February 24th 1891, and one of its articles having established that a Federal Law should regulate the right of the Union and of the States to legislate upon railways, the aforesaid Law was voted and sanctioned October 14th 1892, under Decree number 109.

This Law stipulates :

Art. 1.st The Federal Powers are exclusively competent to decide the establishment :

1) Of all communications by river and by land, contained in the General Plan adopted by Congress.

2) Of all others which should later on proceed from the Legislative Power, and should be considered of Nacional benefit, satisfying strategic necessities or answering to important political or administrative interests.

Art. 2.^d In all other cases such competency belongs to the States.

Art. 3.^d When the improvement interests more than one State, it must be decided by the respective Governments.

Art. 4.th Besides the means of communications referred to in the first article, the Union can establish or assist others, but in harmony with the competent Powers of the State or States which they interest. It can also allow the establishment of the lines mentioned in the same article, in which one or more States are interested making, in this case, contracts with the respective Governments so as to secure uniformity of administration and everything else assuming Federal character.

Paragraph. Such contracts and agreements celebrated by the Executive Power, will only be enforced when approved by the National Congress.

Art. 5. All dispositions to the contrary are revoked.

The Chamber of Deputies, during the session of 1892 appointed a Commission of five Members to prepare a plan of communications which is soon to be submitted to its judgement.

In 1892, the extension of the railways was 41.761^{kil},708 and those granted and fiscalised by the Union amounted to 27.029^{kil},197 :

	Subventioned	Not subventioned
	^{kil.}	^{kil.}
In traffic.....	2.958,434	1.566,707
In construction.....	3.598,926	364,807
Under survey	6.343,535	1.156,700
To be surveyed.....	5.532,670	5.507,418

The fiscalisation was done by engineers who worked separately and who were duly and immediately subordinated to the Minister of Agriculture, Commerce and Public Works (now Minister of Industry, Ways and Public Works.)

Uniformity was wanting in this complicated system, which so much interested the Union.

A Fiscalising Department was created by a Decree on the 20th of June 1891 and its respective regulation approved. This regulation having proved imperfect, was reformed by a Decree creating the Department of «General Railway Inspectorate» to study all questions relative to fiscalisation of railways.

The aforesaid regulation is annexed.

In 1892, two very important Decrees were issued by the Executive Power.

The first approved the Instructions for the Audits of Accounts.

Adopting these instructions, payment of interest became more prompt and the responsibility of the Union was diminished.

The principal object being the integral payment of guaranteed interest in the beginning of January and June, to Companies having their Board of Directors in foreign lands, the net profits being verified by the audit of accounts sent into the Federal Treasury.

By the system formerly in vigour, those balances were sent to the Directorate, and the differences of exchange, proceeding from the transfer of funds, were reckoned as costs.

This important alteration instead of prejudicing the Companies was advantageous to them, because in the beginning of the half-year they received the integral guarantee, relieving the Union of a burdensome duty.

In 1892, the difference of exchange arising from the transfer of funds exceeded 2,000,000\$000 (£ 225,000).

Companies established in Brazil are paid in the beginning of the half-year on presentation of a certificate from the General Inspectorate. Owing to this, Railway Companies are free from the delay inevitable in examining the accounts.

The second to which we referred, was a Decree which authorised the adoption of a changeable tariff on railways.

As exchange has great influence on the prices of imported material and on national productions which are the principal articles of exportation, as coffee, sugar, herva matte, (a kind of national tea), cotton, india-rubber, cacao, it was thought that, as expenses increased enormously, there should be a compensation by raising the tariffs on such products as increased in price.

The Engineers' Club—a remarkable Brazilian Association which includes amongst its members the most eminent engineers and merchants, and which, although not official, has been consulted by Government in very important cases, giving its moral assistance by advice always just, desinterested and patriotic—having been consulted by Government, sent in its report, which was adopted without alteration.

The Central Railway of Brazil (formerly D. Pedro II) having adopted this reform, its tariffs were calculated on the basis of exchange of 20^a and a tax, fluctuating with the rate of exchange below 20^a, to defray increased expenses caused by its depression; the advantages conferred by this alteration ^{led to its immediate adoption by} ~~created a systematic opposition from~~ private companies.

As all classes of merchandise could not stand the same augmentation this tax varied with each class.

These measures will undoubtedly contribute to the prosperity of the different Railway Companies and, as a logical corollary, relieve the Government of a part of the guaranteed interest.

These last measures so far closed the period of reformatations in Legislature regarding railways in Brazil.

These two last reforms are due to L. Coronel Innocencio Serzedello Correia, ex-minister of Industry, etc.

Regulation approved by Decree N.º 1164 of 9th Dec.^r 1892

TITLE I

Competency and Fiscal Action of Government

Art. I. It belongs to Government, «ex vi» of the contracts celebrated and by force of right, to watch over the police and safety of railroads and to attend to the many relations which they have with the public, an ample and immediate action of fiscalisation over all, whether concessions of the Union or of States, since the latter are or may be declared of general interest, have been or may be guaranteed.

Art. II. Government is represented in the right of fiscalisation by the Inspector-General of Railways, officer immediately subordinate to the Minister of Industry, who has ample powers, excepting the restrictions and cases of appeal established in the contracts and in this rule.

Art. III. The head-office of the Inspectorate-General will be in the Federal Capital.

Art. IV. The fiscal engineers will reside in the localities nearest to the railways which they fiscalise, and which have been previously named by the Inspector-General.

Art. V. The fiscal engineers must not be absent from the zone of railways under their fiscalisation without previous authorisation.

TITLE II

Of the Staff

Art. VI. The General-Inspectorate of railways will be composed of the staff as per annexed list.

Art. VII. The head-office of the Inspectorate will comprise the office properly so called and two sections: the one of statistics and the other of graphic works, with the officials mentioned in annexed list.

Art. VIII. Except the Inspector-General, who will be appointed by the President of the Republic, all the officials will be appointed by the Minister of Industry & upon the proposal of the Inspector-General. The nomination of porter, beadle and servant of the head-office belongs however to the Inspector-General.

Art. IX. Engineers eligible for the appointment of Inspector-General, assistant and fiscal engineers, must be native engineers who satisfy the requirements of the Law n. 3001, of Oct. 9, 1880.

Art. X. Fiscal engineers of first and second class will be appointed by promotion from the next lower class and by order of merit. Under equal conditions, seniority will prevail taking into account the time that he may have served in the different Government Commissions.

Art. XI. The Inspector-General will be substituted, when temporarily prevented, by his assistant, it pertaining to the Minister, after having heard the Inspector, to name a provisional substitute, if his absence be prolonged for more than 30 days.

Art. XII. The Inspector-General will name the substitutes of the assistant engineer and other fiscal engineers during their temporary absence.

Art. XIII. Any official who replaces another during his temporary leave, will receive the latter's gratification, whatever be the number of days of substitution, provided that the sum of the gratification and salary does not exceed that of the substituted one.

Art. XIV. The official who occupies provisionally the vacant place, will receive the whole of the latter's salary, losing that pertaining to his own place.

Art. XV. The official who neglects his duty, without any just cause, will lose his whole salary.

Should he justify his absence, only his gratification, corresponding to his days of absence—8 days at the most—, will be discounted.

For his justification, his own written affirmation will suffice, when the number of days does not exceed three. If however exceeding three and less than nine it will be necessary to present a medical certificate ; beyond 8 days, he will only receive salary if he has leave for it.

Art. XVI. The discount for interpolated absences, will correspond to the sum of days in which they took place, and in case of consecutive absence, holidays will also be discounted.

Art. XVII. The justified causes of absence are 1st sickness, 2nd mourning, 3^d marriage.

Paragraph : It belongs to the Inspector-General to judge the justification of absences.

Art. XVIII. Leave of absence given to officials for periods not exceeding 30 days will be granted by the Inspector-General, and those of greater duration by the Minister, the Inspector-General being heard first, and according to the dispositions of Decree 4484 of March 7th, 1870.

Art. XIX. Leave of absence will be granted, with or without salary, but in no case with gratification.

§ 1^o In case of certificated sickness, a year's leave of absence will be granted, with, possibly, the entire salary for 6 months and one half of it for the remainder.

§ 2^o For any other justified motive the leave will not exceed 6 months and if with pay, it will be subject to the following discounts :

Of the 5th part, when the leave is for two months ; of the third part, when for two to four months ; of two thirds, for more than four months.

Art. XX. The time of leave granted with salary, its reforms and prorogations within a year, counting from the day in which the official enters into the enjoyment of the first leave obtained, will be summed up, at the end, in order to make the discount spoken of in the preceding article.

The same will take place in ulterior annual periods.

Art. XXI. In any case, the leave of absence having terminated, the official will receive nothing more, nor will the leave be renewed or prorogated unless he returns to the effective exercise of his employment and remains in it, at least, an equal time to that of the absence determined by the enjoyment of the leave.

Art. XXII. The leave granted will be without effect if the official, who has obtained it, does not make use of it within 30 days, counting from the day on which the concession was published in the *Diario Oficial*, or on which it was communicated to him.

Art. XXIII. No official can obtain leave of absence who has not taken possession of and entered into the exercise of his employment. He, however, may obtain leave of absence, independently of the preceding condition, who falls sick when about to remove from one employment to another.

Art. XXIV. No salary will be paid to the official on leave of absence, unless he has registered the respective leave at the head-office with the declaration of the day on which he began to enjoy it, and satisfied the exigencies prescribed by the fiscal laws.

Art. XXV. The official, who, without justified cause, absents himself for more than a fortnight running, will be considered dismissed.

Art. XXVI. Disciplinary faults committed by officials, which do

not constitute a crime defined by the law in vigour, will be punished, according to their gravity, in the following way :

- 1.st by a simple admonition
- 2.nd by an order of service
- 3.rd by a suspension of 30 days
- 4.th by a dismissal.

Paragraph : The Inspector may enforce any of the above named punishments upon the officials appointed by him, and suspend for 8 days those appointed by the Minister, to whom he will immediately make it known.

Pension and Insurance Fund

Art. XXVII. The officials of the General-Inspectorate can only be reformed when they become invalid in the service of the Nation, by sickness or old age, according to the terms of Legislative Decree n.º 117 of 4th Nov. 1892.

Art. XXVIII. Any official who at any time, by condemnatory sentence, has been convicted of corruption, or practised any act of treason, abuse of confidence or revelation of secrets, forfeits his right to be pensioned.

Art. XXIX. The Mutual Insurance-Fund will be regulated by Decree 1045, 21st Nov. 1890, until the Legislative Power examines the subject.

TITLE III

Concerning Attributions

Art. XXX. The attributions of the Inspector-General are :

I. To demand directly from the Board of Accounts of the Department of Industry, the documents which refer to the technical service of his office, returning them when no longer required.

II. To examine all the questions which belong to the railways of the Union, and then to present his report.

III. To direct and regulate all the service of fiscalisation and distribute it to the sections of the head-office, according to its kind and exigencies.

IV. To inspect personally, when he thinks it convenient, the roads, either in construction or in traffic and their respective accounts.

V. To fine the Companies for infraction of contracts and rules actually in vigour or that may be promulgated, which fine will only be effective after approval by the Minister.

VI. To propose to the Government the nomination, suspension and dismissal of functionaries of the Minister's nomination, according to the present regulation.

VII. To propose to the Government the alteration of tariffs of the different railways.

VIII. To name, suspend or dismiss the porter and beadle of the head-office.

IX. To propose to the Government any measure tending either to reduce the onus contracted by the Union, or to improve the conditions of security, accommodation and police of railroads.

X. To obtain from the Minister the necessary requisitions for the passages of the inspectors, when travelling on public service.

XI. To communicate directly with those who have charge in Europe of the liquidation of accounts of railways, from whom he will ask for any information that he may think necessary.

XII. To observe, and to see that the present regulation is executed in all its dispositions.

XIII. To, provisionally, authorise the opening of traffic on any line and to propose to Government its definitive acceptance.

XIV. To present up to the 15th March of every year a circumstantial account of all the services of the Inspectorate and the budget of expenses to be made in the future exercise with the functionaries of the Inspector's office and the payment of the guarantee of interest to railways.

Art. XXXI. The attributions of the Inspector-General's assistant and secretary are :

I. To direct the technical section of the Inspectorate.

II. To examine all documents remitted by fiscal engineers and to verify whether all the surveys and accounts presented satisfy the conditions of the contracts.

III. To direct personally the services of statistics and graphic sections.

IV. To direct the service of despatch of the head-office.

V. To attend to the proper classification and keeping of the archive.

Art. XXXII. The attributions of the fiscal engineers are :

I. To see to the exact fulfilment of contracts with regard to the railways that they fiscalise.

II. To propose to the Inspector-General the fines which the Companies have incurred by the infraction of contracts and regulations.

III. To propose alterations in the tariffs presented by Companies, modifications to be made in cases foreseen in the contracts, justifying

their proposals, whether agreeing with those presented by the Companies or not.

IV. To propose measures tending either to reduce the expenses of the Union or to improve the conditions of security, accommodation or police of railways.

V. To follow the works and the survey of the lines, in order to verify whether the direction chosen is that which satisfies best, either in plan or in profile, the conditions of the contracts and those of security and economy, in the construction or in the traffic, and the interests of the zone to be served, mentioning in detail and proposing any modifications to be made and alterations to be considered.

VI. To follow the works of construction, verifying whether the lines are constructed according to the approved plans, indicating in detail the modifications that seem convenient to him, the reason of these modifications, and the economy they will produce or have produced in the approved budget.

VII. To remit to the Inspector-General, when opening to traffic any part of a line, a detailed report and position of all the works of art, indicating those which have not been built, although included in the approved plan, and the reasons which caused these modifications, and the economy or expense resulting therefrom.

VIII. To remit, on the same occasion, a detailed list of the bridges and viaducts with metallic superstructures, and the results of tests made on each of these works to verify the conditions of safety.

IX. To propose the provisional acceptance of any part of the line when in condition to be opened to traffic.

X. To examine the time-tables proposed by the administrations of the railways, approving provisionally and submitting them for the definitive approval of the Inspector-General.

XI. To verify the conditions of the maintenance of lines and their dependencies.

XII. To verify, every month, the state of the rolling stock, countersigning the books of registry of locomotives, spoken of in art. 68 of the regulation of April 26, 1857, of the fiscalisation for security maintenance and police of railways.

XIII. To proceed annually, with appropriate instruments and experiment upon the resistance of trains, so as to obtain the formulæ which express them for each road in a straight line and on a level ; to obtain the resistance of the same trains in the inclines and in the curves of the different radii ;

XIV. To study and propose to the Inspector-General measures tending to improve the economic conditions of the roads ;

XV. To take measures, in case of accident, according to the regulation of 26th April 1857 ;

XVI. To fulfil and to see fulfilled the existing regulations or those that may be promulgated ;

XVII. To present every year up to the 15th Feb. a detailed report of the services of railways under his fiscalisation and the budget of expenses, accompanied by statistic tables, according to models annexed, and also the budget of probable expenses to be effected with the fiscalisation and guarantee of interest of the same railways.

TITLE IV

Audit

Art. XXXIII. This service will be done according to the special instructions approved of by the Minister of Industry.

TITLE V

Documents and Statistics

Art. XXXIV. The Companies are obliged to remit to the fiscalising department the following documents :

I. Classification of receipts and expenses, distinguishing the different articles in kinds.

II. The balance of receipts and expenses on the part of the railway already open to traffic.

III. A special account of the expenses of the first cost of each of the sections of the road open to traffic.

IV. A classification of the goods and receipts of the transports effected during the half-year.

V. A demonstration of the earnings of the stations during the half-year.

VI. A table of classification and state of the rolling stock of the line in traffic during the half-year.

VII. A table of the distances run by locomotives, wagons and trains on the line in traffic.

VIII. A demonstration of the expenses of traction and conduction of trains over the road.

IX. A table of the comparative utilisation of trains and vehicles.

X. A table of the consumption of fuel, oil and waste, with the rolling-stock in traffic on the line.

XI. A demonstration of the substitution of material for the permanent way and telegraph.

XII. A statistic of accidents which have taken place on the road in the half-year.

Art. XXXV. The railways without guarantee of interest must remit, to the fiscal, every half-year:

1st A detailed list of the works in construction.

2.^d A demonstration of the expenses of first cost of the part in traffic.

3.^d Demonstrative and statistic tables, organised.

Art. XXXVI. All the Companies are also obliged to remit monthly to the fiscal, in order to be sent to the head-office :

1.st the total receipts of preceding month ;

2.^d the total expenses ;

3.^d the total number of travellers carried ;

4.th the total weight of merchandise despatched by weight ;

5.th the total volume of merchandise despatched by volume ;

6.th the number of animals carried ;

7.th the number of cars carried ;

8.th the number of private telegrams transmitted ;

9.th the number of trains and the distances they ran ;

10.th the extent of the railway in traffic.

General Stipulations

Art. XXXVII. The Government will see that all the documents, relative to the payment of interest to Companies established in Europe, are remitted to the office of the Inspector-General of Railways by the Delegates in Europe, appointed for that purpose.

Art. XXXVIII. The Companies will be obliged to observe the dispositions of Decrees n. 1930, April 26th 1857 ; 5561, Feb. 28th 1874 ; 6995 August 10th 1878 and 7959, Dec. 29th 1880 ; in everything that is not contrary to the present regulation and instructions which have been issued for the audit of accounts and any other service belonging to railways which enjoy the guarantee of interest or subvention.

Art. XXXIX. Officials not included in the table approved, by Order of this date, are considered absolutely on the retired list.

Art. XL. All dispositions to the contrary are revoked.

N.B. The annexes alluded to in the text are not included here.

Instructions for the Audit of Accounts of Railway
Companies which Enjoy Guarantee of Interest or Subvention from the
Union by Order of 17th Dec. 1892

Audit of Accounts

Art. I The audit of accounts will be exercised by a Board composed of the fiscal engineer of said railway, as the representative of the Public Administration, who will preside over the proceedings; of an officer of the Treasury who will act as secretary, and of an official of the Company or Enterprise, legally constituted as its representative.

Art. II. The Board thus constituted will assemble up to the 15th of the month following the last half-year, at the head-office of the works for the lines in construction, and up to the 30th at the head-office where exist the counting houses for the lines in traffic, and will begin the examination of accounts of receipts and expenses or of works executed, ending in time to be able to make payments of interest, within the three months subsequent to the same half-year.

Art. III. For the faithful observance of the preceding article, the fiscal engineer, President of the Board, at the end of each half-year, will communicate with the other members, indicating the day and hour when the meeting is to take place.

§. The member who is prevented from appearing on the day and hour appointed, must give immediate notice to the President of the Board who, in his turn, will immediately communicate the fact to the Inspector-General of railways, so that immediate steps may be taken to substitute the absent member, so that the service of the audit of accounts at the period fixed by article II may not be retarded.

Art. IV. The rejection of documents will be effected by each member of the Board voting and in case of divergence of opinion, the dissenting member may give his opinion separately, declaring himself overruled so far as the interests that he represents are concerned, justifying his difference of opinion.

Art. V. There will be a book for each Board, rubricated by the Inspector-General of Railways, which will serve exclusively for the reports (acts) of audits of accounts.

Paragraph. In the reports (acta) will be mentioned every incident that took place during the meeting.

Art. VI. The diverging vote of any of the members of the Board will cause no obstacle to the conclusion of the proceedings and when coming from the representative of the Company, simply implies a protest for future claim, in case it should not be attended to, in final judgment by the Minister, for the payment of guaranteed interest.

Art. VII. None of the members of the Board can, under any pretext whatever, refuse to sign the reports (acta) since this is not considered as definitive in the audits of accounts.

Art. VIII. The reports of audits of accounts with the balance-sheet for the half-year, the statistical tables required by the regulation and a detailed inventory of the documents of expenses, after being numbered and rubricated by the fiscal engineer, will be sent to the Inspector-General. All the aforesaid documents, the statistical table excepted, will be in duplicate.

Art. IX. The approval of the audits of accounts by the Board does not indicate a final decision, for, in the examination by the General-Inspectorate there may be made proposals for the rejection of expenses which are considered unduly included, also there may be items rejected by the Board which may be afterwards included.

Art. X. It pertains to Government to decide upon these rejections (glosas), additions, and all that may cooperate to the reckoning of the guaranteed capital, for the payment of interest.

On Documents

Art. XI. All expenses must be justified with the projects approved, authorisations received, accounts, bills, certificates, list of payments, and in general, receipts duly legalised, according to the laws of the Treasury.

Art. XII. The receipts must be proved by the passenger tickets passes and receipts of freight, and in general, of any receipts, ordinary, extraordinary or eventual.

It must be well understood that for the audit of accounts, the receipts or rents will be considered as received, when the tickets have been sold and the merchandise despatched.

Art. XIII. Of the lines in construction, the Board will examine the documents relative to the provisional or final measurements already countersigned by the fiscal engineer who has followed them and who therefore assumes the immediate responsibility of the accuracy of the works; the Board will apply the prices approved by Government, will verify

the process of desappropriation, and will examine whether all the works indicated in the approved survey were executed or not, any modifications they underwent in the survey, in the measurement and in the cost, and the reason of all this ; the Board will proceed, in fine, with the minute examination of everything that may assist the computation of the capital spent.

Art. XIV. All documents examined having been countersigned by the Board, it will proceed with the organisation of the measurement in which will be indicated the position of all the works and the original being written in a special book, registered and countersigned by the respective fiscal engineer.

Art. XV. For the purposes of the audit, in the capital raised during the construction, will not be included the cost of rolling stock, nor that of machines or apparatus of any kind, necessary to the repair and maintenance of the road, which will only be put to the account of guarantee of interest, 6 months previous to the said material machines and apparatus above mentioned, being employed in the traffic of the road.

Art. XVI. The road or part of it being open to traffic, the interest corresponding to said capital will be paid according to the balance of liquidation of receipts and traffic expenses, shown by the Company or Enterprise.

Art. XVII. For the lines in traffic will be presented the documents specified in preceding articles.

Art. XVIII. The working expenses of the railway consist of those which depend upon the traffic of passengers, merchandise, repairs, maintenance of rolling-stock, work-shops, stations and all the dependencies of the railroad, such as : work-shops, warehouses, dépôts of any kind ; of the permanent way, all the works of art belonging to it and any other new ones which may have previously been approved by Government.

Art. XIX. Can only be admitted as expense the material actually employed during the half-year at the price of the respective bill and day of payment.

Art. XX. General State and Municipal taxes, demanded by the law and paid by Railway Companies enjoying guaranteed interest from the Union, will be considered as working expenses.

Art. XXI. The expenses that are incurred in foreign countries, whether on account of the capital with guarantee of interest, security, or subvention, or on account of working expenses, must be justified with documents duly legalised by a representative of the Federal Government in those localities, authorised to do so. It must be distinctly understood that the certification of those agents, on the documents alluded to, does

not secure the approval of the expenses to which they refer, but only as an indispensable formality before such documents can be taken into consideration in the audit of accounts, first approved by the Brazilian Government, with the expenses realised in Brazil.

Art. XXII. At the end of every half-year the Companies will present to the Government an account-current of the deposits and withdrawal of interest payable, organised by the deposit bank and countersigned by the Government financial agent when referring to foreign countries, and by the fiscal engineer when in Brazil.

Paragraph. These accounts will be remitted in time so that the fiscal engineer may receive them by the end of the first month following each half-year, in order to be taken into consideration by the Inspectorate in the organisation of the half-yearly accounts of guaranteed interest.

Payment of Guaranteed Interest

Art. XXIII. The guarantee of interest to Companies established in Europe will be paid in full during the first days of the month following the last half-year.

Will remain in full vigour the instructions approved by «Aviso» n. 63, of April 27th 1886, in everything that has not been modified by these presents.

Art. XXIV. The balance of accounts which has been verified between the receipts and expenses of the line in traffic, will be immediately repaid by the different Companies to the Treasuries or Fiscal Agencies in Brazil, the guaranteed interest having been paid in Europe, by anticipation and in full.

Art. XXV. The guarantee of interest to Companies established in Brazil will be paid by anticipation up to the 30th of the month following each half-year, in accordance with the certificate presented by the Inspector-General to the Minister of Industry, and approved by the latter.

Art. XXVI. Will only be admitted as working expenses to be included in traffic accounts, the differences of exchange of remittances from Brazil to Europe, which have been previously authorised, in the terms of the Order n. 160 of Oct. 19th 1892. (1).

Art. XXVII. The payment of guaranteed interest upon the capital in gold, that has to be made in Brazil, in equivalent paper currency, will be realised at the exchange of the day before the payment, after the liquidation of the accounts, within the three months subsequent to each half-year.

(1) This order has been declared of no effect.

CAPITAL FEDERAL DEC^r 17,th 1892

PRINTED-FORM

Report of the Audit of Accounts of the Company.....

Extension in traffic

» » construction

» » survey

At this date, month &. &. at the head-office (as determined in art. 2 of the instructions) at the hour previously appointed, the Members of the Board examining the accounts F.F.... being present, the session was opened.

Being presented by the Representative of the Company..... documents specified in the respective instructions, the examination of same was proceeded with, giving the following result :

Receipts.....\$

Expense.....\$

Net profits or Deficit.....\$

The capital guaranteed being.....\$, according to Decree n..... of..... of....., resulting therefrom that the net indebtedness of the Government for the guaranteed interest amounts to\$..... equal (to£..... (in case the capital guaranteed is in gold)¹ and having nothing more to consider, we close the report.

(Sg.^d) F. *President.*

F. *Secretary.*

F. *Representative of Company.*

1) In case of profit-balance say : that the amount had been immediately sent in to the Public Treasury.

2) In case of rejections — « glosas » — say : by Members representing Government were made rejections of the following items: (discriminating each kind) which amount to.....\$..... the sum to be paid for interest being reduced to\$.....

3) Should there be a protest from any of the Members it will be written out in the form :

— It was voted by the Member (who ever he may be) who.....



Revision of Art. 8 of the Audit of Accounts

Ministry of Industry, Ways & Public Works

Rio de Janeiro, July 10th, 1893

I declare that, to all intents and in accordance with your proposal in Official Communication n. 317 of 19th May 1893, the Art. 8 of the Instructions, approved by Order of 17th December 1892, is substituted by the following :

« The report of the audit of accounts and the balance-sheets for the half-year with the statistical tables, required by the Regulation, and the detailed Inventory of the documents of expenditure, after having been numbered and endorsed by the Fiscal Engineer, are to be sent in to the Inspector-General.

All the documents above referred to, excepting the Statistical tables, will be in duplicate.

(Sg.^a) *Paula Souza.*

To the Inspector-General of Railways.



on

N. of order	s		Results of traffic during the financial year 1892			
	Proposed	Total	Receipts	Expenses	Net profits	Deficit
1	660,789	} 548:651\$707	655:575\$106	106:923\$399
2	7,141				
3	2,900				
4	128,920	} 82:459\$928	148:614\$485	66:154\$557
5	110,000	197,640				
6	170,011				
7	146,420	} 400:157\$506	532:817\$301	132:659\$795
8	47,315				
9	43,000				
10	53,157	} 372:167\$740	594:017\$343	221:849\$603
11	59,736				
12	153,500	190,000				
13	321,993	} 283:808\$085	774:235\$630	490:427\$545
14	131,060				
15	41,000				
16	64,000	} 93:886\$094	138:094\$996	44:208\$055
17	116,000				
18	53,211				
19	12,141	} 239:304\$253	346:963\$495	107:659\$242
20	0,614				
21	11,441				
22	6,436	} 19.869:189\$658	17.123:525\$251	2.745:664\$407	
23	462,290				
24	1,123				
25	1,524	} 1.364:617\$242	1.327:828\$824	36:788\$418	
26	34,090				
27	4,929				
28	63,764	} 1.364:617\$242	1.327:828\$824	36:788\$418	
29	547,822				
30	157,198				
31	231,000	} 1.364:617\$242	1.327:828\$824	36:788\$418	
32	42,451				
33	631,784				
34	205,863	} 1.364:617\$242	1.327:828\$824	36:788\$418	
35	330,000	330,000				
	593,500	5.178,763	23.254:242\$213	21.641:672\$431	2.782:452\$825	1.169:882\$196

another starting from a point between S. Gabriel and Bagé to about 30 kilometres beyond it which

The Railway System of the Union

N. of order	Title	Termini	States traversed	Gauge	Length of lines				Results of traffic during the financial year 1892				
					In traffic	In construction from approved plans	Surveyed	Proposed	Total	Receipts	Expenses	Net profits	Deficit
1	Baturité.....	Fortaleza and Crato.....	Ceará.....	1.00	187,389	202,041	271,189		660,789				
2	Mamanguape Branch.....	Maracanhã (k. 20,800 from main line) and Mamanguape.....	".....	"	7,141				7,141	518,651\$707	655,675\$106		106,92\$300
3	Custom House.....	City Terminus and Custom House.....	".....	"	2,900				2,900				
4	Sobral.....	Camocim and Sobral.....	".....	"	128,920				128,920				
5	Sobral (extension).....	Sobral and Crato.....	".....	"		87,344		110,000	197,344	82,150\$828	148,648\$485		66,49\$357
6	Central of Pernambuco.....	Recife and Pernambuco.....	Pernambuco.....	"	89,000	84,001			173,001	400,157\$506	532,817\$301		132,65\$725
7	South of Pernambuco.....	Recife and Guaranhuns.....	".....	"	146,420				146,420				
8	Branch of Glycerio to Pinar.....	Glycerio (k. 90 from main line) and Pinar.....	Pernambuco and Alagoas.....	"		47,315			47,315				
9	" of Timbuaú to Pinar.....	Timbuaú and Pinar.....	".....	"		10,000			10,000				
10	" of Quendorn to Nova Cruz.....	Quendorn and Nova Cruz.....	Paraná Norte and Rio Grande do Norte.....	"		53,157			53,157	372,167\$740	594,047\$343		221,87\$307
11	" of Mulungu to Campina Grande.....	Mulungu and Campina Grande.....	Paraná Norte.....	"		29,736			29,736				
12	" of Angelim to Água Belles.....	Angelim and Água Belles.....	Pernambuco.....	"		36,700		164,500	201,200				
13	Alagoas to Villa Nova da Rainha.....	Alagoas and Villa Nova da Rainha.....	Bahia.....	"	321,903				321,903				
14	" extension.....	Villa Nova da Rainha and Jezeiro, on the r. S. Francisco.....	".....	"		134,000			134,000	187,808\$085	774,255\$620		490,427\$545
15	Branch to Jacaré.....	Alagoas and Jacaré branch of Santo Antonio.....	".....	"		41,000			41,000				
16	" to Faria de Santa Anna.....	K. 12 from main line to Faria de Santa Anna.....	".....	"		64,000			64,000				
17	Paulo Afonso.....	Praia de Imbuí, on river S. Francisco and Paulo Afonso.....	Alagoas.....	"	116,000				116,000	95,886\$094	138,094\$096		44,20\$057
18	Rio do Ouro.....	Ponta do Cuiú and Represa do Rio do Ouro.....	Capital Federal and Rio Janeiro.....	"	53,211				53,211				
19	Branch to Iguaçu.....	Caxa and Iguaçu.....	Rio de Janeiro.....	"	12,141				12,141				
20	" to Rio do Ouro and Santo Antonio.....	Rio do Ouro and Santo Antonio.....	".....	"	0,614				0,614	246,304\$263	346,706\$495		107,650\$242
21	" to Rio S. Pedro.....	".....	".....	"	11,141				11,141				
22	" to Penha.....	Murumbá and Fazenda Grande.....	Capital Federal.....	0.80	6,456				6,456				
23	Central of Brazil.....	Capital Federal and Lafayette.....	Dist. Fed. R. Janeiro and Minas.....	1.60	162,290				162,290				
24	Branch to Camboriá.....	K. 1 to the main line and station on the line of Camboriá.....	Capital Federal.....	1.60	1,424				1,424				
25	" to Campolide.....	Campolide (k. 15 to main line) and Campolide.....	".....	1.60	1,524				1,524				
26	" to Santa Cruz.....	Sapopemba (k. 21,975) and Santa Cruz.....	".....	1.60	34,090				34,090				
27	" to Muerco.....	Belém (k. 62 to main line) and Muerco.....	Rio de Janeiro.....	1.60	4,929				4,929	19,869,189\$658	17,123,625\$251	2,745,664\$107	
28	" to Porto Novo do Cunha.....	Entre Rio and Porto Novo do Cunha.....	Rio de Janeiro and Minas.....	1.60	63,764				63,764				
29	Extension.....	Lafayette and Pirapora.....	Minas.....	1.00	147,822	190,000	210,000		547,822				
30	Branch to S. Paulo.....	Bom do Pradiz (k. 168 to the main line) and Cachoeira.....	Rio de Janeiro and S. Paulo.....	1.60	157,198				157,198				
31	" to Ouro Preto.....	Cachoeira and S. Paulo.....	S. Paulo.....	1.00	231,000				231,000				
32	" to Ouro Preto.....	Lafayette and Ouro Preto.....	Minas.....	"	42,151				42,151				
33	Porto Alegre to Uruguayana.....	River Uruguay and Uruguayana.....	Rio Grande do Sul.....	"	377,000	254,784			631,784				
34	Branch of Cachoeira to Bagé.....	Cachoeira and Bagé.....	".....	"		205,863			205,863	1,364,617\$242	1,327,828\$824	36,78\$118	
35	" to Sant'Anna do Livramento (*).....	Main line to Bagé and S. Anna do Livramento (S. Anna do Livramento, 1891 A. T. U.).....	".....	"			350,000		350,000				
					2,606,597	1,250,681	727,582	562,500	5,147,359	23,264,242\$213	24,611,672\$431	2,782,452\$826	1,169,882\$127

(*) Two lines were proposed to Sant'Anna do Livramento one starting from the main line near Savam, to run to that point after traversing a distance of about 150,000 kilometres, another starting from a point between S. Gabriel and Bagé to about 30 kilometres beyond it which line is intended to pass through D. Pedrito and reach Sant'Anna do Livramento, passing to an arc of about 160,000 kilometres.

Railway System of the States

N. of order	Title	Termini	States traversed	Gauge	Length of lines					Traffic during 1892			
					In traffic	In construction from approved plans	Surveyed	Proposed	Total	Receipts	Expenses	Net profits	Deficit
1	Santo Amaro.....	Sant'Anna and Bom Jardim.....	Bahia.....	1,0	36,200	36,200				
2	South of Espirito Santo.....	Victoria and Cachoeiro do Itape- mirim.....	Espirito Santo.	"	161,000	161,000				
					36,200	161,000			197,200				



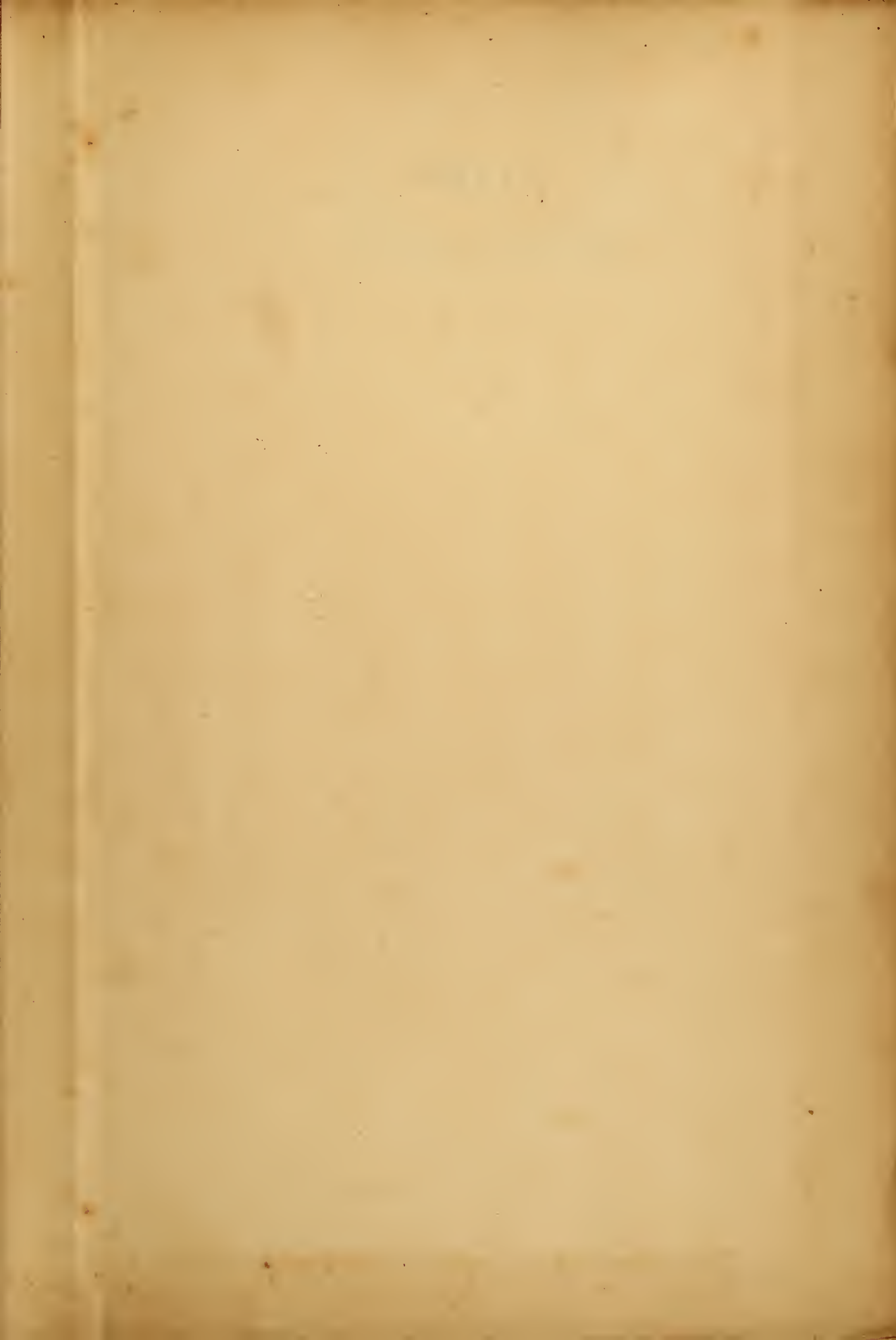
Concessionaires or their assignees

1	A. C. J. Peixoto and successors.....	Taquary to
2	Aff. Carvalho Brandão	Capital Feo
3	Alb. de A. Pinho and others... ..	S. Matheus
4	Antonio P. Mello Barreto	Recife to P
5	Augusto C. de Leivas and others.....	Jaguarão...
6	Banco da Republica and Pedro Caminada.....	Metropolit
7	" Iniciador de Melhoramentos.....	Rio Doce..
8	"	" (C)
9	" União de S. Paulo.....	Uberaba to
10	" Viação do Brazil	Diamantina
11	"	Branch of S
12	"	Extension t
13	"	" f
14	Barão de Soromenho and others.....	Cariuhauha
15	"	Jequitinhon
16	"	"
17	Carlos Baptista de Castro.....	Bomfim.....
18	Carlos Pereira de Sá Fortes.....	Turvo.....
19	C. Agricola Funilense	Campinas to
20	Companhia Bahia e Minas.....	Caravellas to
21	" "	Aymorés to Leop.
22	" "	Theoph. Ottoni to
23	" "	Victoria to Peçan
24	" Brasileira de E. F. e Navegação.....	Aracajú to Simão
25	"	Branch of Capella,
26	" Carris de F. Santos a Santa Victoria.....	Santos to S. Vicenã
27	" Carris de Ferro S. Paulo a Santo Amaro.....	Santo Amaro.
28	"	Villa Mariana to
29	"	Branch of Gazomet
30	" E. F. Bananalense	Bananalense
31	" "	Of Bananal
32	" " Bragantina	Bragantina.....
33	" " Cataguazes	Cataguazes
34	" " Central Alagoana.....	Alagôas to Paulo
35	" "	Branch of Palmeir
36	" "	" of Baixo S
37	" " da Tijuca	Tijuca.....
38	" " de Bragança.....	Bragança.....
39	" " Peçanha a Araxá	Peçanha to Araxá.
40	" " do Cachoeiro do Itapemirim ao Alegre.....	Itapemirim
41	" " do Quilombo.....	Do Quilombo
42	" " e Lavoura Rio e S. Paulo.....	Cruzeiro to Santa
43	" " Minas de S. Jeronymo.....	S. Jeronymo (main
44		
45		
46		
47		
48		

Private Railway Companies

Private Railway Companies (Continued)

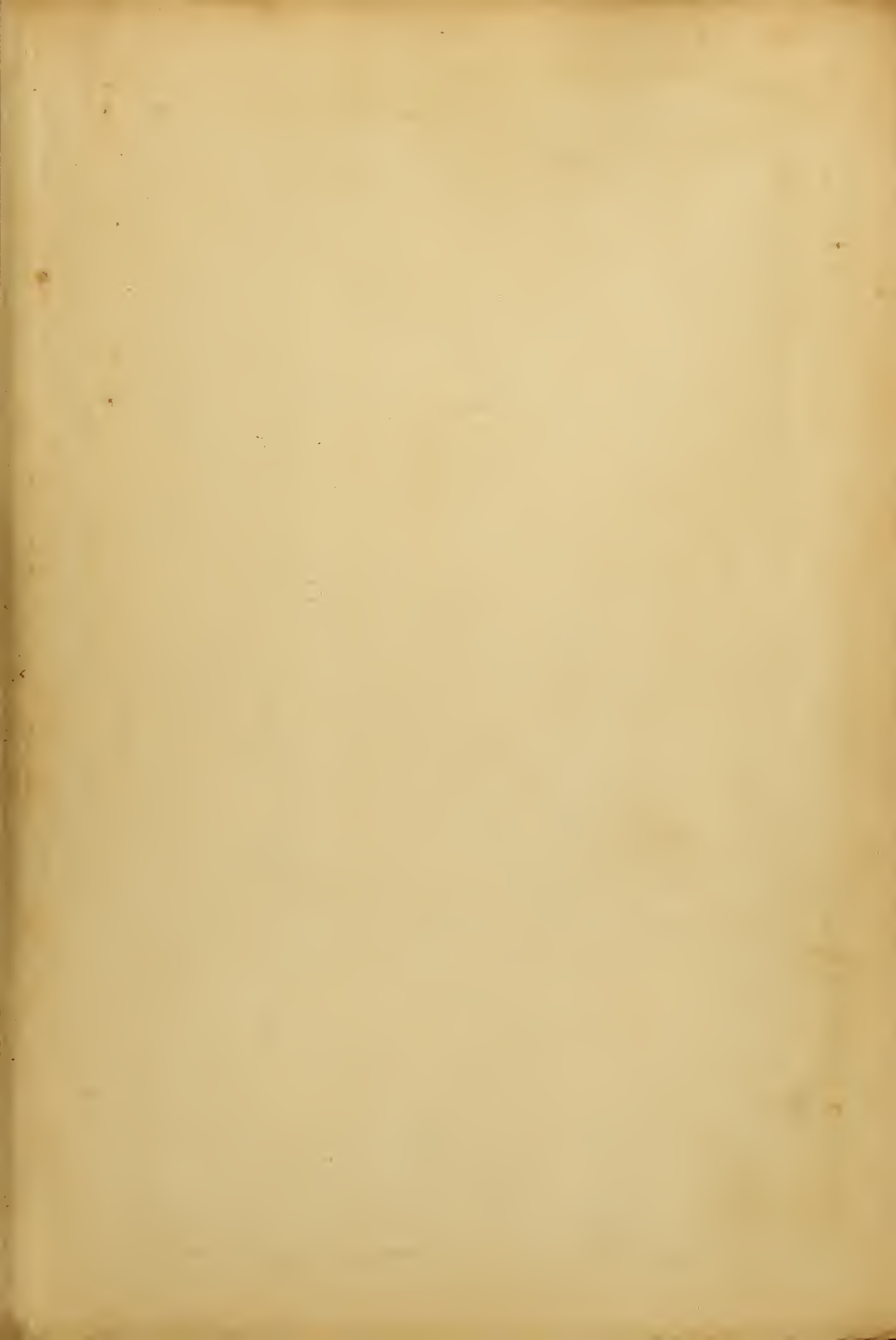
183. P , prefixed to Capital amount indicates Limited and M , indicates Maximum



M. FAZENDA
D.A - DRC - GB

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CCM INVENTARIO
DRC. 4473



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Chrockatt de Sé

Brazilian railways

